

# **The Very Human Dynamics of Knowledge and Value Conversion**

**By Verna Allee**

Chapter 5. pp. 55-66

## **INSPIRED BY KNOWLEDGE IN ORGANISATIONS**

**AHONEN, GUY (ED.)**

ESSAYS IN HONOR OF PROFESSOR  
KARL-ERIK SVEIBY ON HIS 60<sup>TH</sup> BIRTHDAY  
29<sup>TH</sup> JUNE 2008

Helsingfors 2008

**EKONOMI OCH SAMHÄLLE**

Skrifter utgivna vid Svenska handelshögskolan  
Publications of the Swedish School of Economics  
and Business Administration

**Inspired by Knowledge in Organisations:**

Essays in honor of Professor Karl-Erik Sveiby on his 60<sup>th</sup> birthday 29<sup>th</sup> June 2008

Sökord: knowledge, Intellectual Capital. intangibles

© Svenska handelshögskolan & Guy Ahonen

Guy Ahonen

Svenska handelshögskolan

Institutionen för företagsledning och organisation

# The Very Human Dynamics of Knowledge and Value Conversion

It has been twenty years since Karl-Erik Sveiby first proposed that the invisible assets on the balance sheet need to be managed just as carefully as financial or tangible assets. Three basic categories of invisible assets: employee competence, internal structure and external structure first suggested by Sveiby have endured as a standard way of organizing intangible assets (Sveiby 1988). Although many similar classification schemes have been suggested in the last two decades, the basic premise has held up through research and practice: organizational interventions must be understood in terms of both tangible and intangible impact (Sveiby, 1997; Edvinsson & Malone, 1997; Roos, Roos, Dragonetti, and Edvinsson, 1997 Wallman & Blair, 2000; Lev, 2001; Eccles et al., 2001, Andriessen 2004).

An even more important contribution in Sveiby's work, however is his understanding of the dynamics of value creation. In the opening chapter of the often cited book, *The New Organizational Wealth*, Sveiby states quite clearly that "people are the only true agents in business. All assets and structures – whether tangible or intangible – are the result of human actions" (Sveiby 1997). This is an important premise that is not well addressed in most discussions of intangibles. At first glance it appears to be a blinding flash of the obvious, but it calls into question not only traditional assumptions about value creation but even some of the assumptions that are pervasive in the field of intangibles.

This paper explores the implications of Sveiby's thinking for understanding knowledge conversion, value conversion and value networks. Sveiby's insights about people and their interactions provide a foundation for a dynamic understanding of value conversion that puts people at the very heart of value creation. This is a considerable leap forward from traditional business "value management" in the familiar mantra of "people, processes, technology." In a more human, knowledge-centered theory of value processes are not so much sequences of events but rather sequences of interactions. Technologies do not create value but are simply enablers for people to convert knowledge and other assets.

## The Valuation Problem

Much of the work done around intangible assets has been focused on trying to put a valuation on intangibles, sparked largely by Sveiby's observation that there can be a huge gap between book value and market value. This has historically has been referred to as "goodwill" but with potentially millions of dollars in value at stake a knowledge-based enterprise needs to develop more deliberate ways of managing this intangible value. However, focusing only on valuation of static assets, tangible or intangible, ignores the simple principle that *value is an emergent property of social systems*.

Sveiby acknowledges that the value of intangibles only emerges in an indirect way on the stock market or when a company changes hands and often cautions about trying to take the valuation question too far. The slippery slope of valuation became only too apparent in 2001 during the financial scandal of Enron and its accounting firm Arthur Andersen. These companies disappeared virtually overnight due to loss of an intangible asset – reputation. As the scandal was revealed Enron shares dropped from over US \$90 to less than \$.50. The Enron and Arthur Andersen collapse also contributed to the creation of the US Sarbanes-Oxley Act, which was signed into law on July 30, 2002.

What we often forget during incidents such as this one, the 2008 collapse of the housing market in the US, or currency fluctuations such as the decline of the US dollar is that even *financial* value is an emergent property of social systems. The trend in recent years to devise ever more elaborate intangible "accounting" methods is an attempt to rationalize intangibles in the same way that we have insisted that financial capital and physical assets have "real" value. Intangible asset management systems do

provide a very real service in helping managers and leaders focus on the social aspects of business, but they can also serve as a distraction when carried too far into valuation efforts. Further, the more elaborate the valuation method, the more removed the concept of intangibles becomes from everyday work and from the people who do that work.

### **The Human Dimension of Value**

In order to better address how value emerges from social interactions we must first get real people back into the value model. Sveiby reminds us that organizations are not real entities – they are constructed in a constant process by people (Sveiby 1994, Sveiby 2001). “If one looks for an organization one will not find it. What one will find are events linked together. These sequences, their pathways and their timing are the forms we tend to make into objects or processes when we talk about organizations.” Sveiby observes that these event sequences begin with Weick’s response patterns or *double interacts*: “patterns in which an action by actor A evokes a specific response in actor B (interact), which is then responded to by actor A,” (Weick 1979). This complete sequence is a double interact. We could more commonly use the term *exchange* as one way of describing this double interact. An A to B action with *no* response is simply an event or more specifically a *transaction*.

Exchanges carried out in sequence describe pathways not just of events and interactions but of actual value flows. If we begin with the assumption that value is an emergent property of social systems then we must look to this fundamental “cellular” level of value creation and organization – the way people interact to organize exchanges and value flows.

We see the first evidence of value emergence in the exchange. When one person provides something to another that action can be perceived as having a positive or negative value in the eyes of the recipient. When perceived value is positive people feel they have gained or benefitted from the action. If perceived value is high they would be likely to respond in a way that would encourage that action to repeat. One response is to pay the other money to continue the action, a tangible transaction. Other responses may be intangible reciprocity such as expressions of appreciation or responding in kind. For example if one person shares a key business contact with another and he or she returns the favor there is a positive reinforcing loop where both parties gain value. If perceived value is low then a repeat of the action is not encouraged or may even be actively discouraged. Thus in order for value to emerge the action or offering must be perceived as desirable on the part of the recipient.

### **Knowledge and Value Conversion**

Over the course of interactions and exchanges value often changes form. Value conversion occurs when one form of value is converted to another. The exact nature of these conversions cannot be absolutely predicted because they operate according to probability, not predictability. Value conversion is not a mechanistic process – it is a human process. Sveiby anchors value conversion capacity solidly in the human:

*“People can use their competence to create value in two directions: by transferring and converting knowledge externally or internally to the organisation they belong to. When the managers of a manufacturer direct the efforts of their employees internally, they create tangible goods and intangible structures such as better processes and new designs for products. When they direct their attention outwards, they will in addition to delivery of goods and money also create intangible structures, such as customer relationships, brand awareness, reputation and new experiences for the customers. (Sveiby 2001)*

Sveiby explains how knowledge transfers are the foundation of value conversion. Through collaboration and knowledge sharing, supported by various technologies and mechanisms, knowledge is transferred or converted into different forms of intangible assets. He suggests nine dimensions of knowledge transfer or conversion of one type of knowledge asset to another.

1. Knowledge transfers/conversions between individuals
2. Knowledge transfers/conversions from individuals to external structure
3. Knowledge transfers/conversions from external structure to individuals
4. Knowledge transfers/conversions from individual competence into internal structure
5. Knowledge transfers/conversions from internal structure to individual competence
6. Knowledge transfers/conversions within the external structure
7. Knowledge transfers/conversions from external to internal structure
8. Knowledge transfers/conversions from internal to external structure
9. Knowledge transfers/conversions within internal structure

He also suggests 10<sup>th</sup> action to “maximize value creation – see the whole.” This is not actually a transfer or conversion, but rather a sense making and oversight action. So knowledge transfer and conversion, according to this understanding is the foundation for creating intangible assets. How those intangible assets, in turn, get converted into more negotiable forms of value is the question that is specifically addressed in value network analysis.

### **Converting Assets into Negotiable Value**

People convert their competence and other assets under their control into other, more negotiable forms of value that can be deployed or delivered to others. They make these value offerings into the internal or external facing value networks they are part of by playing contributing roles. People usually have many assets to choose from. As individuals we have both financial and intangible assets. We might have some money or capital (financial assets); we have ways some tools and ways of working (internal structure); we have expertise and know-how (human competence) and we have our reputation and personal network (external structure). This also holds true for organizations. We put these assets into motion by converting them into value offerings for others. While each role initiates or offers a potential deliverable for trade, it becomes a completed value *transaction* only upon acceptance by another role in the network. When someone is willing to provide a value in return then together they execute an actual value *exchange*. So, although value can be offered at the role level, *it is only when that value is accepted or validated by another role in the network that the value conversion is complete*.

In turn, when people receive value inputs they convert them into some kind of gain, asset or capability for themselves. They will use knowledge inputs for example to improve competence; payment for services improves financial assets and so forth. If we can more deliberately work with these value conversion dynamics we can not only better utilize and leverage the assets we have but can also link value flows to the accumulation or growth of those assets (See Figure 1).

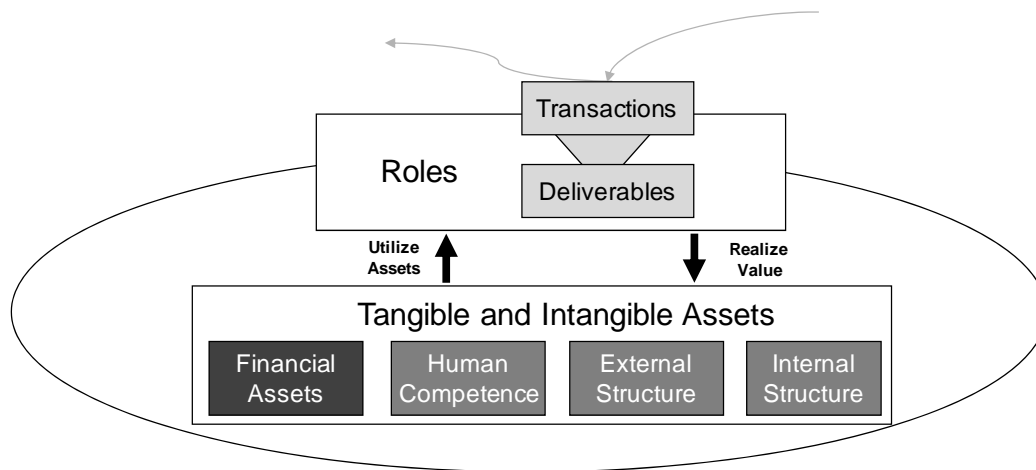


Figure 1 Value Conversion Model

This principle of value conversion applies at every level of value creation from shop floor to nation states and global action networks. A simple example of value conversion would be an intangible asset such as product marketing competency being converted into a more negotiable form of value such as marketing services or reports. People also accumulate assets or *realize* value from various inputs. An example is when a tangible value input, such as purchased market intelligence reports, is converted into a non-financial asset of increased levels of marketing competency.

### Networks and Value Conversion

If human exchanges and interactions are at the heart of both value conversion then the typical ways organizations and business models are represented are inadequate and even misleading. The most used organizational model is the organization chart, which effectively captures reporting relationships but has little to do with the actual way the work gets done or value is created.

Work simply refuses to stay neatly in the boxes. It has long been acknowledged that the real work gets done through informal networks. Social network analysis (SNA) has well demonstrated this in the last few years (Crossand Parker 2003, Anklam 2007). This methodology, which has been used in many different sciences since the 1930s, has helped people to visualize and understand how work conversations and knowledge exchanges (as intangible exchanges) spill over across organizational boundaries.

Social or organizational network analysis is being used more commonly now to identify and support knowledge sharing and expert networks in the organization. But SNA typically maps only one type of link and one kind of role across a network. Therefore, it tends to produce static “snapshots” of relationships rather than illuminating flows and exchanges, which is essential for understanding value conversion.

The natural pattern any living system or social system is the network (Allee 2002). Organizations also are networks consisting of people playing specific roles and engaging in value interactions oriented toward the achievement of a particular task or outcome. (Even the hierarchical organization chart when flattened out forms a classic “hub and spoke network” pattern.) The “true agents” in business – people – participate in the network by playing these roles and converting their tangible and intangible assets into negotiable offerings that serve the network.

Any organization or activity-focused group of people, therefore, can be understood as a value conversion network, or value network. A value network is defined as any set of roles and interactions

in which people engage in both tangible and intangible exchanges to achieve economic or social good. Value network analysis (VNA) introduces several elements into network analysis that bring us much closer to mapping value as an emergent property of human interactions. In value network analysis:

- Nodes represent roles that can be played by one or many participants;
- Links denote delivery of a discrete, specific and negotiable form of value (deliverable);
- Each link can hold multiple characteristics. For example a link can be characterized by its specific deliverable (a report), its nature as tangible or intangible, its perceived value and other key characteristics;
- Links can be sequenced to define key value creating flowpaths or movement over time;
- Every deliverable or transaction can be directly linked to financial and non financial scorecards.

This last element, perhaps more than any other set value network analysis apart from other types of network analysis. Value network interactions can be linked with transactional data (financial) non-financial data (intangible assets) and performance indicators at the level of transaction, role and network.

Value network analysis goes beyond evaluating the one simple network that is usually addressed in SNA. VNA is actually a comparative analysis of three networks that address the same roles and activity: the network of only tangible transactions, the network of intangible transactions and the network of all transaction. Traditional SNA analytics can be applied to all three of these networks and comparative analysis of the structure of these three network patterns often brings illuminating insights. An overall value network can look very cohesive for example, but the intangible network might be very fragmented, which would show that relationships and communication patterns may actually be quite weak. Some of the most useful structural indicators are centrality, structural dependency, density and stability of weak ties.

What is more interesting in regard to Sveiby's work, however are those VNA indicators that are different from the classic SNA indicators. In particular there are a number of indicators emerging in value network analysis that can augment understanding of intangible asset management and value conversion.

### **Intangible Asset Management**

Sveiby suggests three key measurement dimensions to consider in managing intangible assets at the organizational level: indicators of growth and renewal; indicators of efficiency and indicators of stability. Value network analysis provides a way focus specifically on a number of different indicators for intangible asset management, including these that he suggests.

#### *Growth*

Growth of assets is actually managed at the level of the role in a value network, since assets are controlled and utilized by particular roles. Every value input has an impact on financial and non-financial assets. Managing value means understanding how every input it is improving the financial picture, the competence of people, the efficiencies of internal structures and processes or the quality of our business relationships, brand and other external structure.

Sveiby also reminds us also that "in contrast to the Value Chain the intangible value in a Value Network grows each time a transfer takes place because knowledge does not physically leave the creator as a consequence of a transfer" (Sveiby 2001). He also reminds us that value is contextual and a knowledge transfer can also be viewed as a loss. So calculating the actual value of the knowledge transfer more accurately requires being able to understand the value impact of each unique transfer. Knowledge and other transfers must be evaluated in terms of potential cost or risk and for financial or

non-financial gain. In value network analysis knowledge transfers are spelled out very specifically as actual value deliverables (usually intangible) that pass from one role to another.

#### *Efficiency or asset utilization*

Efficiency in asset utilization can be effectively managed in a value network by assessing value outputs in terms of how well financial and non financial assets are being utilized to create value. Value outputs and contributions can also be assessed for their potential impacts (gain or loss) for industry, society or the environment, thus expanding the intangibles assessment to include sustainability indicators. Again this assessment is most easily conducted at the role level, although results can be aggregated to assess overall efficiency of the network.

Efficiency of value conversion might also be a consideration. If key roles are receiving adequate inputs yet are not producing value outputs with a high perceived value then their value conversion efficiency is low. This type of indicator is perhaps more subjective than some people would be comfortable with, as typically the data for this type of indicator is gathered by surveying network participants but it is still useful to ask the question.

There is also of course one of the classic efficiency indicators – time. The time it takes for completion of critical flow paths is very straight forward to calculate both subjectively as high, medium or low and in objectively as actual time calculations to complete a transaction or flowpath sequence.

#### *Role contribution to intangible asset generation*

It is also possible to assess the direction contribution of each role to intangible asset creation as strategic capability, both for the role itself and for the network overall. Just as role can have its own individual intangible asset profile, a profile of assets for the overall network, or key roles within it can also be determined.

### **Value Network Indicators**

Acceptance of any value offering is contextual and dependent upon the functioning of the whole network or system of value. In other words, a deliverable is considered value in one context but not in another. *Value is therefore an emergent property of the network, so understanding the functioning of the network as a whole is essential to understanding exactly how and why value is created.* Although it is useful at the role level to understand one's role in the network and manage one's value inputs and outputs, the dynamics of value in a network are dependent upon network effects, and one cannot determine value by simply adding up all the roles and their outputs (Allee 2008).

The classic unit of analysis in business is the organization and the industry. Networks themselves are usually considered as economic entities in terms of their overall output. Efforts to understand economic outcomes from networks have been gaining ground in the last few years using social network analysis. Several analysts and researchers are using SNA, both metaphorically and analytically, to try to understand networks as economic entities with at least a limited focus on intangible outcomes and exchanges (Granovetter and Swedberg 2001, Cross and Parker 2003; Dawson 2003; Iansiti & Levien 2004).

The expanded elements in VNA provide new insights and offer a number of new potential indicators at the level of the network. Several of the following sample indicators have been developed with colleague Oliver Schwabe and Sveiby has also provided helpful feedback and suggestions in the course of this work.

#### *Stability of the value network*

Stability in value network analysis is not about stability of any single asset but focuses on the stability of the network and its capacity to generate value. There are two indicators that are important in this regard. One indicator is the ratio of tangible to intangible value exchanges. Relationships that are built on only tangible value exchanges are at risk when competitors offer a lower price or something goes wrong with the contract. However, if there is a healthy ratio of tangible to intangible (at least 1:1) then two roles are more likely to work through a problem with the business transaction and keep the relationship.

The second dimension of stability is perceived value. Perceived value can be determined at the level of the transaction, the role or can be aggregated at the network level. If there is an overall sense of high perceived value then the network would be more stable than one where people perceive low value. Since value is an emergent property of the value network attaching a financial value to each transaction or role is not a fruitful exercise. The financial value of the network could be objectively determined by looking at total revenues or valuation of participating organizations, but this would probably only be of interest in an industry level analysis. Perceived value, on the other hand is quite deliberately subjective and could well be a leading indicator for financial value (although this has not been researched to date). Value holds multiple dimensions for people and financial value is not always the real motivator for participating in a value network. Asking people their perceived value of a transaction or role or even the network itself provides a way to assess the stability of role relationships and the network as a whole.

### *Resilience and reciprocity*

The ratio of tangible to intangible transactions also is an indicator of network resilience. This ratio shows the balance between tangible and intangible exchanges. Intangible exchanges tend to follow human relationships and many also require a degree of trust. An appropriate ratio of tangibles to intangibles indicates that strong relationships exist with the potential for sense making and negotiation. This capacity allows those playing different roles to adapt, adjust and negotiate change without fragmenting the network.

A high percentage of tangible exchanges might show a high level of transparency through formal structures, but it also might indicate that there is a lack of trust and low flexibility. A high percentage of intangible transactions might show high flexibility and strong personal relationships. On the other hand it also might indicate inefficiencies and “work-arounds” where a formal process is broken or where more structure is needed. The “right” ratio varies with culture and industries. This ratio is also key to determine both the role level and network level of reciprocity.

### *Risk*

Risk is an interesting assessment at the level of the value network. Centrality, a classic SNA network indicator is usually used to define the most influential or “central” people in a network. Interestingly enough, however, from the standpoint of a value creating network if one or two roles carry exceptionally high centrality this is actually a risk factor for the network overall. The risk increases even more if the role is played by only one person or organization. If, for some reason, that person or organization fails to execute their role effectively it reverberates negatively throughout the entire network. One of the things to watch out for are roles that are overburdened with too many inputs and outputs. Another classic indicator that helps to assess risk is density, which typically shows the speed of communication.

### **Conclusions**

Value network analysis provides a “missing link” between intangible asset management, the organization chart, process management and social network analysis. By supporting role behaviors and

an intangibles mindset it moves intangibles from the abstractions of the accounting focus literally to the shop floor. The approach is rapidly gaining adoption in global companies such as Boeing, in global action networks addressing atrocities, slavery and other systemic social and environmental challenges, and in government agencies. It is being used by everyday project managers and “flowpath leaders” to address challenges from supply and logistics to open innovation and organizational redesign. At the business web level it is being used to understand complexities in transportation, pharmaceuticals and many other industries. It has also been used to demonstrate powerful linkages between innovation value network patterns and Intellectual Capital creation at the regional and national level for the European Commission. (Allee et al 2007).

The robustness of the value network method is in large part due to carefully building upon and expanding the theory of knowledge-based enterprise. Further, integrating living systems theory and insights from cybernetics allows a more organic understanding of how value emerges from social systems. Focusing on people as the “true agents” of value creation as proposed by Sveiby provides a new perspective of value creation. People move to center stage in the business model. Instead of being considered interchangeable cogs in the wheel of industry they become the means of production for value itself. By integrating financial and intangible asset management with a deep appreciation of these very human dynamics, value network analysis provides a way to truly model how a knowledge-based enterprise creates value.

Verna Allee is President of Valuenetworks.com, ([www.valuenetworks.com](http://www.valuenetworks.com)) a technology company providing tools for visualizing and analyzing value networks. She can be reached at [verna@vernaallee.com](mailto:verna@vernaallee.com).

## References

- Allee, V; Innocenti, A; Koumpis A; Mavridis A.; Molinari, F; Pasher, E.; Shachar, S.; Schwabe, O.; Tektonidis, D.; Tresman, M.; and Vontas, A., “Effectiveness of ICT RTD Impacts on the EU Innovation System: Final Report. Evaluation Study for the European Commission, DG Information Society and Media Directorate C *Lisbon Strategy and Policies for the Information Society*, Unit C3 – Evaluation and Monitoring, December 11, 2007.
- Allee, V; Innocenti, A; Koumpis A; Mavridis A.; Molinari, F; Pasher, E.; Shachar, S.; Schwabe, O.; Tektonidis, D.; Tresman, M.; and Vontas, A., Annex to the Final Report. Evaluation Study for the European Commission, DG Information Society and Media Directorate C *Lisbon Strategy and Policies for the Information Society*, Unit C3 – Evaluation and Monitoring, December 11, 2007.
- Allee, V. (2000), “The value evolution”, *Journal of Intellectual Capital*, vol. 1, pp. 17-32.
- Allee, V. (2002), “A value network approach for measuring and modeling intangibles”, paper presented at the Transparent Enterprise Conference, Madrid, available at: [www.vernaallee.com](http://www.vernaallee.com).
- Allee, V. (2003), *The Future of Knowledge: Increasing Prosperity through Value Networks*, Butterworth-Heinemann, Boston, MA.
- Allee, V (2008), Value Network Analysis and value conversion of tangible and intangible assets, *Journal of Intellectual Capital*, January 2008, Volume 9, Issue 1, pp 5-24.
- Andriessen, D (2004), *Making Sense of Intellectual Capital*, London, Elsevier
- Anklam, P., (2007) *Net Work: a practical guide to creating and sustaining networks at work and in the world*, Elsevier Butterworth-Heinemann, Boston.

- Bontis, Nick, (2004), "National Intellectual Capital Index: A United Nations initiative for Arab countries, *Journal of Intellectual Capital*, Volume 5, Issue 1, pp. 13-39.
- Bounfour, A., and Edvinsson, L., (2005) *Intellectual Capital for Communities: Nations, Regions and Cities*, Elsevier Butterworth-Heinemann, London.
- Cross R. and Parker, A. (2003), *The Hidden Power of Social Networks*, Harvard Business School Press, Boston, MA.
- Dawson, R. (2003), *Living Networks: Leading Your Company, Customers, and Partners in the Hyper-Connected Economy*, Prentice Hall, New York, NY
- Eccles, R.G., Herz, R.H.; Keegan, E.M, and Phillips, D.M.H, (2001), *The Value Reporting Revolution*, PricewaterhouseCoopers, New York, NY.
- Edvinsson, L. and Malone, M.S. (1997), *Intellectual Capital: Realizing Your Company's True Value by Finding its Hidden Brainpower*, Harper Business, New York, NY.
- Evinsson, L, (1999) "Intellectual Capital of Nations – for Future Wealth Creation, " *Journal of Human Resource Costing and Accounting*, Volume 4, Issue 1, pp. 21-33.
- Granovetter, M. and Swedberg, M. (2001), *The Sociology of Economic Life*, Westview Press, Boulder, CO.
- Iansiti, M. and Levien, R. (2004), *The Keystone Advantage*, Harvard Business School Press, Boston, MA.
- Lev, B. (2001), *Intangibles: Management, Measurement and Reporting*, Brookings Institution, Washington DC.
- Pasher, E. and Schachar, S. (2005) "The Intellectual capital of the State of Israel, in *Intellectual Capital for Communities: Nations, Regions and Cities*, Chapter 9, pp. 139-150 Elsevier Butterworth-Heinemann, London.
- Pulic, Ante, (2005) "Value Creation Efficiency at National and Regional Levels: Case study – Croatia and the European Union, in *Intellectual Capital for Communities: Nations, Regions and Cities*, Chapter 12, pp. 197-212, Elsevier Butterworth-Heinemann, London.
- Roos, G., Roos, J., Dragonetti, N., and Edvinsson, L., (1997) *Intellectual Capital: navigating in the new business landscape*. New York, NY. University Press.
- Sveiby, K-E (1988). *Den Nya Arsredovisningen* (the New Annual Report).
- Sveiby, K-E (1994), *Towards a Knowledge Perspective of Organization*, Akademitryck AB, Edsbruk, Sweden.
- Sveiby, K-E. (1997), *The New Organizational Wealth: Managing & Measuring Knowledge-Based Assets*, Berrett-Koehler, San Francisco, CA.
- Sveiby, K-E (2001), "A Knowledge-Based Theory of the Firm for Strategy Formation," *Journal of Intellectual Capital*, Volume 2, Issue 4.
- Wallman, S. and Blair, M. (2000), *UnSeen Wealth: Report of the Brookings Taskforce on Understanding Intangible Sources of Value*, The Brookings Institution, Washington DC.
- Weick, K. (1979), *The Social Psychology of Organizing*. Second edition, McGraw Hill, New York.